

CLAIMS

What is claimed is:

1. A cleaning apparatus for cleaning a system having a first fluid, said cleaning apparatus comprising:

- 5 a second fluid;
an air compressor; and
an air storage tank;

10 wherein said air compressor compresses air into said air storage tank, wherein said second fluid enters said system and cycles in said system with said first fluid for a predetermined period of time, and wherein after said predetermined period of time, said air in said air storage tank is delivered to said system for purging said first fluid and said second fluid from said system.

15 2. The cleaning apparatus of claim 1, wherein said system includes a system outlet, said cleaning apparatus further comprising an air conduit coupled to said system outlet to deliver said air to said system.

3. The cleaning apparatus of claim 1, wherein said system includes a system inlet, said cleaning apparatus further comprising an air conduit coupled to said system inlet to deliver said air to said system.

20 4. The cleaning apparatus of claim 1 further comprising an air regulator for regulating a pressure of said air being delivered to said system.

5. The cleaning apparatus of claim 1 further comprising an air pressure shutoff switch for shutting off said air compressor when an air pressure reaches a predetermined level.

6. The cleaning apparatus of claim 5 further comprising an air pressure gauge coupled to said air compressor for measuring said air pressure.

7. The cleaning apparatus of claim 1 further comprising a timed air release control controlling an air release solenoid, wherein said air release solenoid receives said air from said air storage tank and delivers said air to said system.

8. A method of cleaning a system having a first fluid, said method comprising the steps
5 of:

providing a second fluid into said system;

cycling said first fluid and said second fluid in said system;

compressing air into an air storage tank;

terminating said cycling step;

10 terminating said compressing step; and

purging said first fluid and said second fluid from said system using said air in said air storage tank.

9. The method of claim 8, wherein said providing and said cycling steps substantially overlap with said compressing step.

10. The method of claim 8, wherein said compressing step is performed prior to said providing step.

11. The method of claim 8, wherein said step of purging includes regulating a pressure of said air.

12. The method of claim 8, wherein said step of terminating said compressing step
20 includes measuring an air pressure and ending said compressing step when said air pressure reaches a predetermined level.

13. The method of claim 8, wherein said system includes a system pump and said system pump performs said cycling step.

14. A cleaning apparatus for cleaning a system having a first fluid and a system pump, said

cleaning apparatus comprising:

a tank including a second fluid;

an output hose;

an apparatus pump for pumping a predetermined amount of said second fluid from

5 said tank into said system via said output hose, while said system pump is off;

a return hose; and

a filter between said return hose and said output hose;

wherein after said predetermined amount of said second fluid is pumped into said
system, said system pump is turned on to pump said first fluid and said second fluid out of said
10 return line through said filter and into said output hose and back into said system.

15. The cleaning apparatus of claim 14 further comprising a flow sensor for providing an
indication when said predetermined amount of said second fluid has been pumped into said
system.

16. The cleaning apparatus of claim 15 further comprising a controller in communication
15 with said apparatus pump and said flow sensor, wherein upon receipt of said indication from
said flow sensor by said controller, said controller turns off said apparatus pump.

17. The cleaning apparatus of claim 14 further comprising:

an air storage tank; and

an air compressor for compressing air into said air storage tank;

20 wherein said air in said air storage tank is delivered to said system for purging said first
fluid and said second fluid from said system.

18. The cleaning apparatus of claim 14 further comprising an air regulator for regulating a
pressure of said air being delivered to said system.

19. The cleaning apparatus of claim 14 further comprising an air pressure shutoff switch

for shutting off said air compressor when an air pressure reaches a predetermined level.

20. The cleaning apparatus of claim 19 further comprising an air pressure gauge coupled to said air compressor for measuring said air pressure.

21. The cleaning apparatus of claim 14 further comprising a timed air release control
5 controlling an air release solenoid, wherein said air release solenoid receives said air from said air storage tank and delivers said air to said system.

22. A method of cleaning a system having a first fluid and a system pump, said method comprising the steps of:

connecting an output hose to said system;

10 connecting a return hose to said system;

pumping a predetermined amount of a second fluid into said system via said output
hose while said system pump is off;

turning on said system pump;

pumping out said first fluid and said second fluid through said return hose using said
15 system pump;

filtering said first fluid and said second fluid in said return hose to generate a filtered
fluid; and

pumping said filtered fluid into said system via said output hose using said system
pump.

20 23. The method of claim 22, wherein said step of pumping step of said predetermined amount of said second fluid includes the steps of:

measuring said second fluid for providing an indication to a controller when said
predetermined amount of said second fluid has been pumped into said system; and

terminating said pumping step when said processor receives said indication.

24. The method of claim 22 further comprising the steps of:
compressing air into an air storage tank; and
purging said first fluid and said second fluid from said system using said air in said air storage tank.

5 25. The method of claim 24, wherein said compressing step is performed prior to said step of pumping said predetermined amount of said second fluid into said system.

26. The method of claim 24 further comprising the step of turning off said system pump prior to said purging step, wherein said step of compressing starts prior to said step of turning on said system pump and terminates prior to said step of turning off said system pump.

10 27. The method of claim 24, wherein said step of purging includes regulating a pressure of said air.

28. The method of claim 24, wherein said compressing step includes measuring an air pressure and ending said compressing step when said air pressure reaches a predetermined level.

15 29. A filter suction assembly capable of removing a fluid in a filter, said filter suction assembly comprising:

a suction tube for insertion into said filter;

a valve coupled to said suction tube to prevent said fluid from returning to said filter;

and

20 a pump coupled to said valve to pump said fluid out of said filter.

30. The filter suction assembly of claim 29, wherein said pump is a venturi pump.

31. The filter suction assembly of claim 29, wherein said pump pumps said fluid into a waste tank.

32. The filter suction assembly of claim 29, wherein said filter , is removed after said pump

pumps said fluid out of said filter.

33. A cleaning apparatus for cleaning a system having a first fluid and a system pump, said cleaning apparatus comprising:

a tank including a second fluid;

5 an output hose;

a fluid container coupled to said output hose;

an apparatus pump for pumping a predetermined amount of said second fluid from said tank into said fluid container, said apparatus pump including a first float for switching off said apparatus pump when said first float reaches a first predetermined level in said fluid container;

10 a return hose; and

a filter positioned between said return hose and said output hose;

wherein after said predetermined amount of said second fluid is pumped into said fluid container, said system pump is turned on to pump said second fluid into said system and said first fluid and said second fluid out of said system through said return line, said filter and said fluid container and into said output hose and back into said system.

34. The cleaning apparatus of claim 33, wherein said apparatus pump further includes a second float for switching off said apparatus pump when said second float reaches a second predetermined level in said fluid container.

35. The cleaning apparatus of claim 33, wherein said filter is inside said fluid container.

20 36. A method of cleaning a vehicle oil system having a first fluid and a dipstick tube, said method comprising the steps of:

providing a second fluid into said system;

cycling said first fluid and said second fluid in said system;

terminating said cycling step;

inserting a suction wand into said dipstick tube; and

pumping said first fluid and said second fluid out of said system through said suction wand.

37. The method of claim 36, wherein said vehicle oil system includes a system pump, and wherein said cycling step is performed by said system pump.

38. The method of claim 37, wherein said providing step is performed by an apparatus pump, wherein said apparatus pump pumps said second fluid into said vehicle oil system while said system pump is off.

39. The method of claim 36, wherein said step of cycling includes pumping out said first fluid and said second fluid out of said vehicle oil system, filtering said first fluid and said second fluid to generate a filtered fluid and pumping in said filtered fluid into said vehicle oil system.

40. A thread gauge for determining a thread size of a vehicle engine oil filter, said thread gauge comprising:

a threaded gauge barrel;

a first oil filter adapter insert mounted on said threaded gauge barrel;

a second oil filter adapter insert mounted on said threaded gauge barrel; and

threaded stud attached to said threaded gauge barrel;

wherein said first and second threaded adapter inserts are utilized to determine said thread size said vehicle engine oil filter.

41. The thread gauge of claim 40, wherein said thread gauge barrel has a circular barrel shape.

42. The thread gauge of claim 40, wherein a thread size of said threaded stud is indicated on the outer surface of said thread gauge barrel.

43. The thread gauge of claim 40, wherein said threaded stud is color-coded to match said first threaded adapter insert or said second threaded adapter insert.

44. A cleaning apparatus for cleaning a system having a first fluid and a system pump, said cleaning apparatus comprising:

5 a tank including a second fluid;

an output hose;

a fluid container coupled to said output hose;

a return hose;

a filter positioned between said return hose and said output hose;

10 a source of compressed air; and

wherein said compressed air is delivered to said filter for draining said first fluid and said second fluid in said filter via said output hose or said return hose.

45. The cleaning apparatus of claim 44, wherein each of said return hose and said output hose include a check valve that closes when said hose is not connected.

15 46. The cleaning apparatus of claim 45, wherein prior to delivering said compressed air, an open end fitting is inserted into said check valve of said return hose or said output hose.

47. A cleaning apparatus for cleaning a system having a fluid, said cleaning apparatus comprising:

an air compressor;

20 an air storage tank; and

a timed air release control;

wherein said air compressor compresses air into said air storage tank, said air in said air storage tank is delivered to said system for purging said fluid for a predetermined amount of time as controlled by said timed air release control.

48. The cleaning apparatus of claim 47, wherein said system includes a system outlet, said cleaning apparatus further comprising an air conduit coupled to said system outlet to deliver said air to said system.

49. The cleaning apparatus of claim 47, wherein said system includes a system inlet, said
5 cleaning apparatus further comprising an air conduit coupled to said system inlet to deliver said air to said system.

50. The cleaning apparatus of claim 47 further comprising an air regulator for regulating a pressure of said air being delivered to said system.

51. The cleaning apparatus of claim 47 further comprising an air pressure shutoff switch
10 for shutting off said air compressor when an air pressure reaches a predetermined level.

52. The cleaning apparatus of claim 51 further comprising an air pressure gauge coupled to said air compressor for measuring said air pressure.

53. The cleaning apparatus of claim 47, wherein said timed air release control controls an air release solenoid.

54. The cleaning apparatus of claim 47, wherein said timed air release control operates
15 under electromechanical control.

54. The cleaning apparatus of claim 47, wherein said timed air release control operates under microprocessor control.